WHAT IS CLAIMED IS:

1. A method for the production of an amino acid from a target 2-ketoacid comprising:

creating a mutated enzyme that catalyzes the reductive amination or transamination of the target 2-ketoacid; and

providing the mutated enzyme in a reaction mixture comprising the target 2-ketoacid under conditions sufficient to permit the formation of the amino acid to thereby produce the amino acid.

2. The method of claim 1, wherein the mutated enzyme catalyzes the reductive amination of the target 2-ketoacid.

3. The method of claim 2, wherein the mutated enzyme is an amino acid dehydrogenase.

4. The method of claim 3, wherein the amino acid dehydrogenase is a leucine dehydrogenase.

5. The method of claim 3, wherein the amino acid dehydrogenase is a phenylalanine dehydrogenase.

6. The method of claim 2, further comprising providing an existing enzyme that catalyzes the reductive amination of a 2-ketoacid, wherein the mutated enzyme is created by mutating the existing enzyme, and further wherein the mutated enzyme catalyzes the reductive amination of the target 2-ketoacid at a greater rate than the existing enzyme.

7. The method of claim 1, wherein the mutated enzyme catalyzes the transamination of the target 2-ketoacid

8. The method of claim 7, wherein the mutated enzyme is selected from the group consisting of aspartic-glutamic transaminases, aromatic amino acid transaminases, and branched-chain amino acid transaminases.

9. The method of claim 7, further comprising providing an existing enzyme that catalyzes the transamination of a 2-ketoacid, wherein the mutated enzyme is created by mutating the existing enzyme, and further wherein the mutated enzyme catalyzes the transamination of the target 2-ketoacid at a greater rate than the existing enzyme.

10. The method of claim 1, wherein the reaction mixture further comprises ammonia or a salt thereof.

11. The method of claim 1, wherein the reaction mixture further comprises a nicotinamide cofactor.

12. The method of claim 11, wherein the nicotinamide cofactor is recycled.

13. The method of claim 1, wherein the amino acid is chiral.

14. The method of claim 1, wherein the target 2-ketoacid is selected from the group consisting of 3,3-dimethyl-2-ketobutyrate, 3-(2-naphthyl)pyruvate, 3-(1-naphthyl)pyruvate, and 4-(methylphosphinyl)-2-ketobutyrate.

15. The method of claim 1, wherein the mutated enzyme is created by:

providing an existing enzyme;

mutating the existing enzyme to produce the mutated enzyme;

determining the activity of the mutated enzyme on the target 2-ketoacid by contacting the mutated enzyme with a composition comprising the target 2-ketoacid and thereafter determining whether there is a change in the pH of the composition; and

determining whether the mutated enzyme catalyzes the reductive amination or transamination of the target 2-ketoacid at a greater rate than the existing enzyme.

16. The method of claim 15, wherein the determining step comprises detecting an optical change in the composition.

17. The method of claim 16, wherein the composition further comprises a pH indicator, wherein the determining step comprises detecting the pH change using the pH indicator.

18. A method for the production of an amine from a target ketone comprising:

creating a mutated enzyme that catalyzes the reductive amination or transamination of the target ketone; and

providing the mutated enzyme in a reaction mixture comprising the target ketone under conditions sufficient to permit the formation of the amine to thereby produce the amine.

19. The method of claim 18, wherein the mutated enzyme catalyzes the reductive amination of the target ketone.

20. The method of claim 19, wherein the mutated enzyme is an amino acid dehydrogenase.

21. The method of claim 19, further comprising providing an existing enzyme that catalyzes the reductive amination of a ketone, wherein the mutated enzyme is created by mutating the existing enzyme, and further wherein the mutated enzyme catalyzes the reductive amination of the target ketone at a greater rate than the existing enzyme.

22. The method of claim 18, wherein the mutated enzyme catalyzes the transamination of the target ketone.

23. The method of claim 22, wherein the mutated enzyme is selected from the group consisting of aspartic-glutamic transaminases, aromatic amino acid transaminases, and branched-chain amino acid transaminases.

24. The method of claim 22, further comprising providing an existing enzyme that catalyzes the transamination of a ketone, wherein the mutated enzyme is created by mutating the existing enzyme, and further wherein the mutated enzyme catalyzes the transamination of the target ketone at a greater rate than the existing enzyme.

25. The method of claim 18, wherein the mutated enzyme is created by:

providing an existing enzyme;

mutating the existing enzyme to produce the mutated enzyme;

determining the activity of the mutated enzyme on the target ketone by contacting the

mutated enzyme with a composition comprising the target ketone and thereafter determining whether there is a change in the pH of the composition; and

determining whether the mutated enzyme catalyzes the reductive amination or transamination of the target ketone at a greater rate than the existing enzyme.

26. A method for the production of an alcohol from a target ketone comprising:

creating a mutated enzyme that catalyzes the reduction of the target ketone; and

providing the mutated enzyme in a reaction mixture comprising the target ketone under conditions sufficient to permit the formation of the alcohol to thereby produce the alcohol.

27. The method of claim 26, wherein the mutated enzyme is selected from the group consisting of alcohol dehydrogenases, ketoreductases, and carbonyl reductases.

28. The method of claim 26, wherein the mutated enzyme is the alcohol dehydrogenase YPR1.

29. The method of claim 26, further comprising providing an existing enzyme that catalyzes the reduction of a ketone, wherein the mutated enzyme is created by mutating the existing enzyme, and further wherein the mutated enzyme catalyzes the reduction of the target ketone at a greater rate than the existing enzyme.

30. The method of claim 26, wherein the mutated enzyme is created by:

providing an existing enzyme;

mutating the existing enzyme to produce the mutated enzyme;

determining the activity of the mutated enzyme on the target ketone by contacting the mutated enzyme with a composition comprising the target ketone and thereafter determining whether there is a change in the pH of the composition; and

determining whether the mutated enzyme catalyzes the reduction of the target ketone at a greater rate than the existing enzyme.